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PRESS PADS FOR HIGH-PRESSURE AND LOW-PRESSURE PRESSES
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- (56) Prior Art Documents
JP 62-234698
JP 62-234696
DE 2650642
- (57) Claim

1. A press pad made of an asbestos-free fabric which is composed of:

Group 1:

1.1) yarn made of aromatic polyamide, which may be mixed with other yarn materials as required and which comprises metal threads in any portion; and/or

1.2) metal yarn; and one or more materials selected from the group consisting of:

Group 2:

2.1) heat resistant filament made of rubber or a rubber mixture;

2.2) heat resistant filament made of silicone or a silicone mixture;

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2.3) heat resistant, flexible plastics filament;

2.4) material of the sub-groups 2.1, 2.2 and/or 2.3 having a metal core, wherein this metal core does not have to be fixedly connected with the shell that surrounds it;

2.5) material of at least one of the sub-groups 2.1 - 2.4 bordered by metal threads; and

2.6) yarn of sub-group 1.1 but without metal threads;

but excluding a combination of the materials of group 1 with the yarn of sub-group 2.6.

AUSTRALIA
PATENTS ACT 1990
COMPLETE SPECIFICATION

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INVENTION TITLE:

Press pads for high-pressure and low-pressure presses

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

Description

5 The invention relates to a press pad made of asbestos-free material for a great variety of different types of high-pressure and low-pressure presses, e. g., short-cycle and multiplaten presses for the lamination of particle-boards with melamine, etc., high-pressure presses for the production of high-pressure laminates and other presses for many other applications. This list is only exemplary and does not claim to be complete.

10 The presses mentioned above are mechanical systems which work with different temperatures and pressures. The presses themselves as well as the materials to be pressed have more or less large tolerances. In such presses, press pads have the task of compensating for these tolerances and of transferring the pressing pressure uniformly to the entire surface of the materials to be pressed.

Additionally, press pads must have good thermal conductivity so that the heat which is necessary for the manufacture of the final product is transmitted with the smallest possible loss.

20 Press pads must not only compensate for the mentioned tolerances and have good thermal conductivity, but they must also be able to withstand the sometimes considerable pressures and temperatures in the presses and they must retain these characteristics over prolonged periods.

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The following types of press pads are predominantly used at the present time: pads made of asbestos-free yarns comprising metal threads, identical yarns in combination with pure metal yarn, pure metal pads, kraft papers, press pads with fleece mats (see GM G 92 03 498.5). This list is only exemplary and does not claim to be complete.

Advantageously, the invention provides a press pad which, compared to the press pads used in the past, is characterized by a particularly marked improvement of the padding action and, at the same time, good heat transfer.

According to the present invention there is provided a press pad made of an asbestos-free fabric which is composed of

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Group 1:

1.1) yarn made of aromatic polyamide, which may be mixed with other yarn materials as required and which comprises metal threads in any portion; and/or

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1.2) metal yarn; and one or more materials selected from the group consisting of:

Group 2:

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2.1) heat resistant filament made of rubber or a rubber mixture;

2.2) heat resistant filament made of silicone or a silicone mixture;

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2.3) heat resistant, flexible plastics filament;

2.4) material of the sub-groups 2.1 - 2.3 having a metal core, wherein this metal core does not have to be fixedly connected with the shell that surrounds it;

2.5) material of the sub-groups 2.1 - 2.4 bordered by metal threads; and

2.6) yarn of sub-group 1.1 but without metal threads;

but excluding a combination of the materials of group 1 with the yarn of sub-group 2.6.

One will select the diameter of the materials of the sub-groups 2.1 - 2.6 according to the desired padding action. The thickness of the press pad and thus the accompanying padding action may also be accomplished, if required, by single-layered or multi-layered weaves.

Occasionally, the thermal conductivity of the press pad is of secondary importance, for example, during very long pressing times. In such cases, the following material combinations may also lead to advantageous results:

- I) material of sub-group 2.6 with a material of the sub-group 2.1 - 2.5
- II) material of sub-group 2.6 with several materials of the sub-groups 2.1 - 2.5.



According to another aspect of the invention there is therefore provided a press pad made of asbestos-free fabric which is composed of yarn of sub-group 2.6 with one or more of the materials of the sub-groups 2.1 to 2.5 as described above.

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The metal core of the material of sub-group 2.4 may be comprised of monofilaments or multifilaments.

In the following, the invention is explained in greater detail by way of exemplary embodiments from which ensue further important characteristics.

Fig. 1 shows a section through a press pad according to the invention,

Fig. 2 shows a view of a yarn used here,

15 Fig. 3 shows the material of sub-group 2.4 with a multifilament metal core,

Fig. 4 shows the material of sub-group 2.4 with a monofilament metal core.

The drawing figures illustrate only some of the materials of an embodiment of a press pad according to the invention; the complete composition ensues from the information above and from the claims.

The press pad 10 illustrated in Figure 1 has interwoven 25 yarns 20 made from aromatic polyamide 20 and, for example, heat resistant filaments 30 made of rubber, silicone or of mixtures of these.

According to Figure 2, filaments 42 made of heat resistant rubber or silicone are wound around the metal core 41 of the 30 material 40.



Figure 3 is a perspective view of a filament 60 made of the material of sub-group 2.4 with a multifilament metal core 61.

Figure 4 is a perspective view of another filament 70 made of the material of sub-group 2.4 with a monofilament metal core 71.

The following provides examples for the use of or for combining the different yarn materials according to the invention:

1. General informations:

A press pad is expected to have two main characteristics:

1. good padding action (= tolerance compensation)
2. good heat conductivity.

In order to accomplish a good padding action, one needs a press pad which is as thick as possible. As a rule, heat transfer deteriorates as the thickness of the press pad increases.

In order to accomplish good thermal conductivity, one needs as much material with good conductivity as possible. But if a press pad is made of pure metal, this pad has the best conceivable thermal conductivity but no padding action, because a pad made of pure metal has no recuperative capacity, which also means no padding action.

Since users have different mechanical equipment (presses) and produce a great variety of different products, press pads must meet a plurality of different requirements. New products used on the part of the users always require corresponding adjustments and new developments in the field of press pads. Therefore it is necessary that a technical and cost-effective compromise between the two above-mentioned extremes be found for each application.



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2. Examples:

Example I: Pad with an extremely good padding action:
thermal conductivity of secondary importance
(very low).

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Composition of the pad: material of sub-group
2.6 with one or several materials of the sub-
groups 2.1 - 2.3

10 Example II: Pad with a very good thermal conductivity and
good padding action at the same time.
Composition of the pad: material of sub-group
1.2 with 2.5.

15 Example III: Pad with balanced padding action and thermal
conductivity.
Composition of the pad: material of sub-group
1.1 with 2.4



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The claims defining the invention are as follows:

1. A press pad made of an asbestos-free fabric which is composed of:

5 Group 1:

1.1) yarn made of aromatic polyamide, which may be mixed with other yarn materials as required and which comprises metal threads in any portion; and/or

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1.2) metal yarn; and one or more materials selected from the group consisting of:

Group 2:

15 2.1) heat resistant filament made of rubber or a rubber mixture;

2.2) heat resistant filament made of silicone or a silicone mixture;

20 2.3) heat resistant, flexible plastics filament;

2.4) material of the sub-groups 2.1, 2.2 and/or 2.3 having a metal core, wherein this metal core does not have to be fixedly connected with the shell that surrounds it;

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2.5) material of at least one of the sub-groups 2.1 - 2.4 bordered by metal threads; and

2.6) yarn of sub-group 1.1 but without metal threads;

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but excluding a combination of the materials of group 1 with the yarn of sub-group 2.6.

2. A press pad made of asbestos-free fabric which is composed of yarn of sub-group 2.6 with one or more of the materials of the sub-groups 2.1 to 2.5, with the sub-groups being defined as in claim 1.

3. A press pad according to claim 1 or 2, which is a single-layered or multi-layered weave.

4. A press pad substantially as hereinbefore described with reference to the drawings and/or Examples.

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DATED this EIGHTEENTH day of AUGUST 1998

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Patent Attorneys for the applicant(s)



Abstract

A press pad made of asbestos-free material is described, which pad is characterized by the following components: material of group 1.1 and/or of group 1.2 with one or several materials of group 2, but excluding the combination of the materials of group 1 with the yarn of group 2.6, wherein the groups 1 and 2 are defined as follows:

Group 1:

1.1) yarn made of aromatic polyamide, which may be mixed with other yarn materials as required and which comprises metal threads in any portion

1.2) metal yarn.

Group 2:

2.1) heat resistant filament made of rubber or a rubber mixture

2.2) heat resistant filament made of silicone or a silicone mixture

2.3) heat resistant, flexible plastics filament

2.4) material of the groups 2.1, 2.2 and/or 2.3 having a metal core, wherein this metal core does not have to be fixedly connected with the shell that surrounds it

2.5) material of at least one of the groups 2.1 - 2.4 bordered by metal threads

2.6) yarn of group 1.1 but without metal threads.

It is also possible to combine the material of group 2.6 with one or several materials of the groups 2.1 to 2.5.

Fig.1

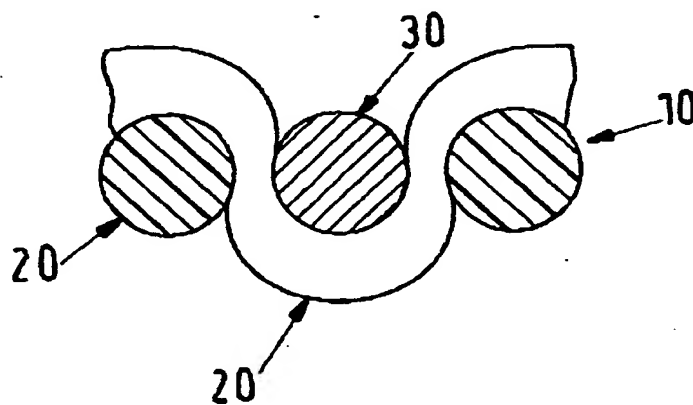


Fig.2

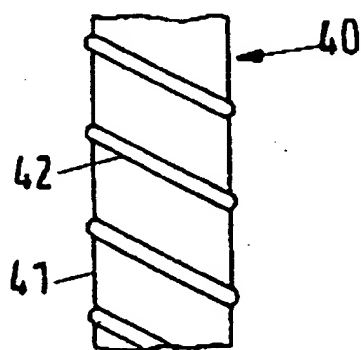


Fig.3

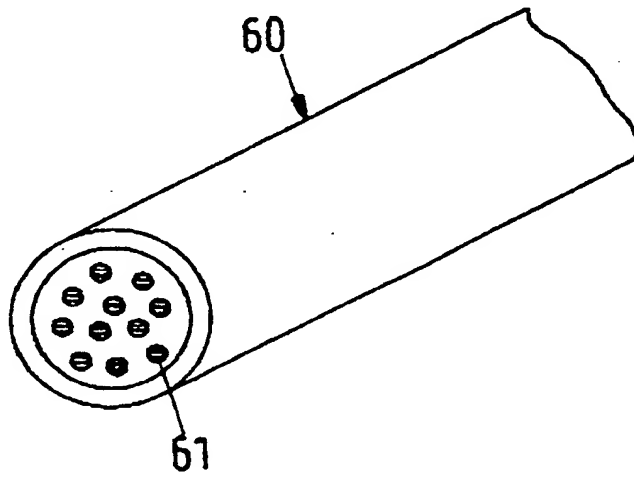


Fig.4

